Complete Summary

GUIDELINE TITLE

Cough and aspiration of food and liquids due to oral-pharyngeal dysphagia: ACCP evidence-based clinical practice guidelines.

BIBLIOGRAPHIC SOURCE(S)

Smith Hammond CA, Goldstein LB. Cough and aspiration of food and liquids due to oral-pharyngeal dysphagia: ACCP evidence-based clinical practice guidelines. Chest 2006 Jan;129(1 Suppl):154S-68S. [62 references] PubMed

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Cough and aspiration of food and liquids due to oral-pharyngeal dysphagia

GUIDELINE CATEGORY

Diagnosis
Evaluation
Management
Prevention
Risk Assessment
Treatment

CLINICAL SPECIALTY

Emergency Medicine
Family Practice
Gastroenterology
Geriatrics
Internal Medicine
Neurological Surgery
Neurology
Nutrition
Oncology
Orthopedic Surgery
Physical Medicine and Rehabilitation
Psychiatry
Pulmonary Medicine
Speech-Language Pathology
Surgery
Thoracic Surgery

INTENDED USERS

Advanced Practice Nurses
Allied Health Personnel
Dietitians
Health Care Providers
Hospitals
Managed Care Organizations
Nurses
Occupational Therapists
Patients
Physical Therapists
Physician Assistants
Physicians
Respiratory Care Practitioners
Speech-Language Pathologists

GUIDELINE OBJECTIVE(S)

To present the evidence for the diagnosis and treatment of cough and aspiration of food and liquids due to oral-pharyngeal dysphagia, and to make recommendations that will be useful for clinical practice

TARGET POPULATION

Patients with cough and aspiration of food and liquids due to oral-pharyngeal dysphagia

INTERVENTIONS AND PRACTICES CONSIDERED

Diagnosis/Evaluation/Risk Assessment

1. Medical history
2. Patient and caregiver interview
3. Oral-pharyngeal swallowing evaluation
4. Referral to speech language pathologist (SLP) for assessment
5. Observation of drinking small amounts of water
6. Videofluoroscopic swallow evaluation (VSE)
7. Fiberoptic endoscopic evaluation of swallowing (FEES)
8. Chest radiograph
9. Nutritional assessment

Treatment/Management/Prevention

1. Multidisciplinary team patient management
2. Compensatory strategies to safely swallow
3. Dietary modifications
4. Surgical intervention

Interventions considered but not recommended include: Reflexive cough response to inhaled irritants, muscle strength training with or without electromyographic biofeedback, electrical stimulation treatment of the swallowing musculature

MAJOR OUTCOMES CONSIDERED

- Prevention of aspiration
- Sensitivity, specificity, positive and negative predictive value of reflexive cough and voluntary cough as indicators for aspiration
- Risk for aspiration

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The evidence review procedures included section-specific targeted searches as well as a formal systematic review on selected topics.

Formal Systematic Reviews

Formal systematic reviews on selected topics covered in the guideline were performed by the Center for Clinical Health Policy Research at Duke University Medical Center. For the key questions addressed by the formal systematic reviews see the section titled "Methodology and Grading of the Evidence for the Diagnosis and Management of Cough" (see "Availability of Companion Documents" field).

Literature Search Strategy

The Duke University research team conducted a systematic and comprehensive literature review that began with searches of MEDLINE from 1966 through August 2003 with limits of articles published in the English language and with human subjects. Search terms included the medical subject heading term "cough" combined with a published strategy for identifying randomized controlled trials (RCTs). A separate search combined the medical subject heading terms "bronchiectasis," "cystic fibrosis," and "respiratory therapy" with the RCT strategy. However, searches using terms related to the therapeutic use of specific agents, including "antitussive agents," "expectorants," "bronchodilator agents," "ipratropium," "albuterol," "orciprenaline," and "cromolyn sodium" had poor specificity in the absence of the term "cough," and thus were not used. Additional searches were targeted to double-blind RCTs of nonspecific antitussive therapy and protussive drugs (e.g., expectorant, mucolytic, mucus-modifying agents) for all indications other than those listed in question 2 in the section titled "Methodology and Grading of the Evidence for the Diagnosis and Management of Cough" (see "Availability of Companion Documents" field) that reported on cough clearance or cough symptoms and had been published since the previous American College of Chest Physicians cough guidelines were published. The trials identified in this search were provided to the section authors.

In addition to MEDLINE, the Duke University research team searched the National Guideline Clearinghouse and the Cochrane Library (including the Cochrane Database of Systematic reviews, the Cochrane Controlled trial register, and the Database of Abstracts of Reviews of Effectiveness). Additional studies were identified from the reference lists of review articles and by querying experts in the field.

Inclusion and Exclusion Criteria

The criteria for the inclusion and exclusion of articles were developed for each research question and are shown in Table 1 in the section titled "Methodology and Grading of the Evidence for the Diagnosis and Management of Cough (see the "Availability of Companion Documents" field). The abstracts of all articles were reviewed by two physicians (one with methodological expertise and one with content area expertise), and those meeting the inclusion criteria were selected for review in full text.

Section-Specific Review

Relevant literature was identified by searching the Communication Sciences and Disorders Dome, Cumulative Index to Nursing and Allied Health Literature, Educational Resource Information Center, Health & Psychosocial Instruments, The American Psychological Association, and the National Library of Medicine databases from 1965 to 2004 using the terms "deglutition," "aspiration," and "cough."

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Expert Consensus
Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Quality of the Evidence

Good = evidence based on good randomized controlled trials (RCTs) or meta-analyses

Fair = evidence based on other controlled trials or RCTs with minor flaws

Low = evidence based on nonrandomized, case-control, or other observational studies

Expert opinion = evidence based on the consensus of the carefully selected panel of experts in the topic field. There are no studies that meet the criteria for inclusion in the literature review.

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Note from the National Guideline Clearinghouse (NGC): The evidence review procedures included section-specific targeted searches as well as a formal systematic review on selected topics. Formal systematic reviews on selected topics covered in the guideline were performed by the Center for Clinical Health Policy Research at Duke University Medical Center. For more information see the section titled "Methodology and Grading of the Evidence for the Diagnosis and Management of Cough" (see "Availability of Companion Documents" field).

Formal Systematic Reviews

Synthesis

Details from "included" articles (see the "Description of Methods Used to Collect/Select the Evidence" field) were extracted and recorded into evidence tables. No quantitative synthesis, such as meta-analysis, was performed, but aggregated data were described and analyzed qualitatively.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus
Expert Consensus (Consensus Development Conference)
Informal Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

The recommendations were formulated by an international panel of 26 experts representing seven clinical specialties. Many were members of the American College of Chest Physicians (ACCP), but representatives from other medical associations, including the American College of Physicians, Canadian Thoracic Society, and American Thoracic Society, also participated on the panel. These experts convened on several occasions, including a panel conference in Boston, MA, in November 2004, in which they deliberated the final content and recommendations, the rating of the quality of the evidence, the estimation of benefits to the patient population, and the grading of the strength of the recommendations. Authors were selected, or in some cases writing committees were formed, for each topic to review evidence, write an article, and draft guidelines. These assignments were made by the steering committee based on the authors' known expertise in that specific area of the diagnosis and treatment of cough, and their research and writing skills.

The recommendations were graded, by consensus of the panel, using the ACCP Health and Science Policy Grading System, which is based on the following two components: quality of the evidence; and the net benefit of the diagnostic or therapeutic procedure. The quality of evidence is rated according to the study design and strength of the other methodologies used in the included studies. The net benefit of the recommendation is based on the estimated benefit to the specific patient population described in each recommendation and not for an individual patient. The authors of each recommendation proposed their best estimate of the net benefit, and the entire panel considered these choices for each recommendation. At the conference, the panel revised the assessments of net benefit for many recommendations to be consistent across all recommendations.

When there was insufficient evidence, the panel used informal group consensus techniques to refine or develop recommendations based on the expert opinion of the panel. Eighty percent of the panel was in attendance at the final conference to collaborate on the final wording and grading of the recommendations. Even those recommendations that were based on expert opinion were considered to be worthy of inclusion, as they were the recommendations of an international and multidisciplinary team with considerable expertise in the diagnosis and treatment of patients with cough.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Strength of Recommendations

A = strong recommendation

B = moderate recommendation

C = weak recommendation

D = negative recommendation

I = no recommendation possible (inconclusive)

E/A = strong recommendation based on expert opinion only

E/B = moderate recommendation based on expert opinion only

E/C = weak recommendation based on expert opinion only

E/D = negative recommendation based on expert opinion only

Net Benefit

Substantial = There is evidence of benefit that clearly exceeds the minimum clinically significant benefit and evidence of little harm

Intermediate = Clear evidence of benefit but with some evidence of harms, with a net benefit between that defined for "substantial" and "small/weak"

Small/weak = There is evidence of a benefit that may not clearly exceed the minimum clinically significant benefit, or there is evidence of harms that substantially reduce (but do not eliminate) the benefit such that it may not clearly exceed the minimum clinically significant benefit

None = Evidence shows that either there is no benefit or the benefits equal the harms

Conflicting = Evidence is inconsistent with regard to benefits and/or harms such that the net benefit is uncertain

Negative = Expected harms exceed the expected benefits to the population

Table: Relationship of Strength of the Recommendations Scale to Quality of Evidence and Net Benefits

	Net Benefit					
Quality of Evidence	Substantial	Intermediate	Small/Weak	None	Conflicting	Negative
Good	A	A	B	D	I	D
Fair	A	B	C	D	I	D
Low	B	B	C	I	I	D
Expert Opinion	E/A	E/B	E/C	I	I	E/D

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

The executive committee of the panel extensively reviewed each section of the guideline manuscript during the writing process. The November 2004 conference provided an opportunity for the entire panel to review the latest drafts. Following final revisions and one final review by the executive committee, each section of the guidelines was reviewed and approved by the Clinical Pulmonary Medicine, Respiratory Care, Pediatric Chest Medicine, Environmental and Occupational and Airways Disorders NetWorks of the American College of Chest Physicians (ACCP), as well as the ACCP Health and Science Policy Committee, and subsequently by the ACCP Board of Regents.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Definitions for the level of evidence, strength of recommendation, and net benefit follow the "Major Recommendations."

Medical Diagnoses and Conditions Associated With Aspiration and Silent Aspiration on Videofluoroscopic Swallow Evaluation (VSE)

Diagnoses and Conditions	Description
Neurologic impairment	Cerebrovascular disease* Head trauma, closed head injured* Cervical spinal injury* Anoxia* Seizure disorder* Vocal fold paralysis* Degenerative disease (inclusion body myositis) Multiple sclerosis Parkinson disease* Amyotrophic lateral sclerosis* Huntington disease Brain and brain-stem tumors Myasthenia gravis Guillain-Barre syndrome Progressive supranuclear palsy Dementia, altered mental status Alzheimer disease*
Surgery related	Head and neck cancer; postradiation effects* Anterior or posterior cervical spine surgery* Surgery-related muscular or neurogenic injury Vocal fold paralysis* Brain surgery* Coronary artery bypass grafting* Cervical spinal* (anterior and posterior approach) Esophagogastrectomy*
Infectious	Botulism toxin, anticholinergics, possible drug related Diphtheria Lyme disease Altered immune response: human immunodeficiency virus

Diagnoses and Conditions	Description
	[HIV], leukemia Candida Mucositis (herpes, cytomegalovirus) Syphilis
Structural	Osteophytes, diffuse idiopathic skeletal hypertrophy Diffuse idiopathic skeletal hyperostosis Cricopharyngeal bar Oropharyngeal tumors, glossectomy*, poor dentition, periodontal disease Congenital abnormalities of nasal, oral, and laryngeal cavities, cleft palate Tracheoesophageal fistula
Endocrine disease	Diabetes, thyroid disorders
Cardiac conditions	
Gastrointestinal (GI) problems	Zenker diverticulum Esophageal dysphagia Laryngopharyngeal reflux* Globus
Pulmonary	Pneumonia Bronchitis* Chronic obstructive pulmonary disease (COPD)
Tracheotomy	
Intubation	>48 hours* Ventilated patients*
Medication side effects	Chemotherapy Sedatives* Neuroleptics* Antipsychotics

*Diagnostic groups reported to have a high risk for aspiration and silent aspiration.

1. In patients with cough, a medical history particularly directed at identifying conditions increasing the likelihood of oralpharyngeal dysphagia and aspiration, as indicated in the table above entitled "Medical Diagnoses and Conditions Associated With Aspiration and Silent Aspiration on Videofluoroscopic Swallow Evaluation (VSE)", should be obtained. Patients with high-risk conditions should be referred for an oral-pharyngeal swallowing evaluation. Level of evidence, low; benefit, substantial; grade of recommendation, B

2a. Patients with cough and their caregivers should be questioned regarding perceived swallowing problems, including an association of cough while eating or drinking and a fear of choking while eating and drinking. If a patient with cough reports swallowing problems, further evaluation for oral-pharyngeal dysphagia is indicated. Level of evidence, low; benefit, substantial; grade of recommendation, B

2b. Further evaluation, including a chest radiograph and a nutritional assessment, should be considered in patients with cough or conditions associated

with aspiration. Level of evidence, low; benefit, substantial; grade of recommendation, B

3. Patients with oral-pharyngeal dysphagia and cough should be referred, ideally to a speech-language pathologist (SLP), for an oral-pharyngeal swallow evaluation. Level of evidence, low; benefit, substantial; grade of recommendation, B

4. Patients with cough related to pneumonia and bronchitis who have received medical diagnoses and conditions associated with aspiration (see table above, titled "Medical Diagnoses and Conditions Associated With Aspiration and Silent Aspiration on Videofluoroscopic Swallow Evaluation (VSE)") should be referred, ideally to a speech-language pathologist (SLP), for an oral-pharyngeal swallow evaluation. Level of evidence, low; benefit, substantial; grade of recommendation, B

5. Patients with a reduced level of consciousness are at high risk for aspiration and should not be fed orally until the level of consciousness has improved. Level of evidence, low; benefit, substantial; grade of recommendation, B

6. Alert patients with cough who are in high-risk groups for aspiration (see table above, titled "Medical Diagnoses and Conditions Associated With Aspiration and Silent Aspiration on Videofluoroscopic Swallow Evaluation (VSE)") should be observed drinking small amounts of water (3 oz). If the patient coughs or shows clinical signs that are associated with aspiration (see Tables 2, 3 of the original guideline document), the patient should be referred for a detailed swallowing evaluation, preferably to an SLP. Level of evidence, low; benefit, substantial; grade of recommendation, B

7. In patients with cough, the value of the subjective assessment of voluntary cough (VC) as the sole predictor of aspiration is uncertain because of poor reliability and an unclear association with evaluation. Level of evidence, low; benefit, conflicting; grade of evidence, I

8. The assessment of the reflexive cough (RC) response to inhaled irritants as a predictor of aspiration risk and subsequent pneumonia is not recommended due to a lack of adequate supportive studies. Level of evidence, low; benefit, conflicting; grade of evidence, I

9. In acute stroke patients, the expulsive phase rise time of VC may predict aspiration. The use of this test has not been validated in other patient groups, and further studies comparing the accuracy of objective measures of VC to the clinical swallow evaluation to identify aspiration risk are needed. Level of evidence, low; benefit, small; grade of recommendation, C

10. Patients with dysphagia should undergo VSE or fiberoptic endoscopic evaluation of swallowing (FEES) evaluation of swallow to identify appropriate treatment. Level of evidence, low; benefit, substantial; grade of recommendation, B

11. Patients with dysphagia should be managed by organized multidisciplinary teams that may include a physician, a nurse, an SLP, a dietitian, and physical and occupational therapists. Level of evidence, low; benefit, substantial; grade of recommendation, B

12. In patients with dysphagia, VSE or FEES can be useful for determining compensatory strategies enabling patients with dysphagia to safely swallow. Level of evidence, low; benefit, substantial; grade of recommendation, B

13. In patients with dysphagia, dietary recommendations should be prescribed when indicated, and can be refined by testing with foods and liquids simulating those in a normal diet during the VSE or FEES. Level of evidence, low; benefit, substantial; grade of recommendation, B

14. For patients with muscular weakness during swallowing, muscle strength training, with or without electromyographic biofeedback, and electrical stimulation treatment of the swallowing musculature are promising techniques but cannot be recommended at this time until further work in larger populations is performed. Level of evidence, low; benefit, conflicting; grade of evidence, I

15. Patients with intractable aspiration may be considered for surgical intervention. Level of evidence, low; benefit, substantial; grade of recommendation, B

Definitions:

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Low	B	B	C	I	I	D
Expert Opinion	E/A	E/B	E/C	I	I	E/D

CLINICAL ALGORITHM(S)

The following clinical algorithms are provided in the section titled "Diagnosis and Management of Cough Executive Summary" (see "Availability of Companion Documents" field)"

- Acute cough algorithm for the management of patients ≥15 years of age with cough lasting <3 weeks
- Subacute cough algorithm for the management of patients ≥15 years of age with cough lasting 3 to 8 weeks
- Chronic cough algorithm for the management of patients ≥15 years of age with cough lasting >8 weeks
- Approach to a child <15 years of age with chronic cough
- Approach to a child ≤14 years of age with chronic specific cough

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate diagnosis and effective management of cough due to oral-pharyngeal dysphagia

POTENTIAL HARMS

Not stated

CONTRAINDICATIONS

CONTRAINDICATIONS

Contraindications for videofluoroscopic swallow evaluation (VSE) or fiberoptic endoscopic evaluation of swallowing (FEES):

- Lethargy
- Absent swallow response on command
- Abnormal upper airway sounds
- Inability to manage oral pharyngeal secretions (need for frequent oral/pharyngeal suctioning)
- Respiratory rate >35 breaths/min

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- The information provided in the guideline should be used in conjunction with clinical judgment. Although the guideline provides recommendations that are based on evidence from studies involving various populations, the recommendations may not apply to every individual patient. It is important

for the physician to take into consideration the role of patient preferences and the availability of local resources.

- The American College of Chest Physicians (ACCP) is sensitive to concerns that nationally and/or internationally developed guidelines are not always applicable in local settings. Further, guideline recommendations are just that, recommendations not dictates. In treating patients, individual circumstances, preferences, and resources do play a role in the course of treatment at every decision level. Although the science behind evidence-based medicine is rigorous, there are always exceptions. The recommendations are intended to guide healthcare decisions. These recommendations can be adapted to be applicable at various levels.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

IMPLEMENTATION TOOLS

Clinical Algorithm

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness
Staying Healthy

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Smith Hammond CA, Goldstein LB. Cough and aspiration of food and liquids due to oral-pharyngeal dysphagia: ACCP evidence-based clinical practice guidelines. Chest 2006 Jan;129(1 Suppl):154S-68S. [62 references] PubMed

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2006 Jan

GUIDELINE DEVELOPER(S)

American College of Chest Physicians - Medical Specialty Society

SOURCE(S) OF FUNDING

American College of Chest Physicians

GUIDELINE COMMITTEE

American College of Chest Physicians (ACCP) Expert Panel on the Diagnosis and Management of Cough

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

The American College of Chest Physicians (ACCP) has a very stringent approach to the issue of potential or perceived conflicts of interest. This policy is published on the ACCP Web site at www.chestnet.org. All conflicts of interest within the preceding 5 years were required to be disclosed by all panelists, including those who did not have writing responsibilities, at face-to-face meetings, the final conference, and prior to submission for publication.

The most recent of these are documented in the published guideline supplement. Furthermore, the panel was instructed in this matter, verbally and in writing, prior to the deliberations of the final conference.

ENDORSER(S)

American Thoracic Society - Medical Specialty Society
Canadian Thoracic Society - Medical Specialty Society

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available to subscribers of Chest - The Cardiopulmonary and Critical Care Journal.

Print copies: Available from the American College of Chest Physicians, Products and Registration Division, 3300 Dundee Road, Northbrook IL 60062-2348.

AVAILABILITY OF COMPANION DOCUMENTS

The following are available:

- Diagnosis and management of cough executive summary: ACCP evidence-based clinical practice guidelines. Northbrook, IL: ACCP, 2006 Jan.

Background and Methodology Information

- Introduction to the diagnosis and management of cough: ACCP evidence-based clinical practice guidelines. Northbrook, IL: ACCP, 2006 Jan.
- Methodology and grading of the evidence for the diagnosis and management of cough: ACCP evidence-based clinical practice guidelines. Northbrook, IL: ACCP, 2006 Jan.

Additional Background Information

- Anatomy and neurophysiology of the cough reflex: ACCP evidence-based clinical practice guidelines. Northbrook, IL: ACCP, 2006 Jan.
- Global physiology and pathophysiology of cough: ACCP evidence-based clinical practice guidelines. Northbrook, IL: ACCP, 2006 Jan.
- Complications of cough: ACCP evidence-based clinical practice guidelines. Northbrook, IL: ACCP, 2006 Jan.
- Overview of common causes of chronic cough: ACCP evidence-based clinical practice guidelines. Northbrook, IL: ACCP, 2006 Jan.
- Assessing cough severity and efficacy of therapy in clinical research: ACCP evidence-based clinical practice guidelines. Northbrook, IL: ACCP, 2006 Jan.
- Potential future therapies for the management of cough: ACCP evidence-based clinical practice guidelines. Northbrook, IL: ACCP, 2006 Jan.
- Future directions in the clinical management of cough: ACCP evidence-based clinical practice guidelines. Northbrook, IL: ACCP, 2006 Jan.

Electronic copies: Available to subscribers of Chest - The Cardiopulmonary and Critical Care Journal.

Print copies: Available from the American College of Chest Physicians, Products and Registration Division, 3300 Dundee Road, Northbrook IL 60062-2348.

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on May 4, 2006. The information was verified by the guideline developer on June 5, 2006.

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